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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,990	12/01/2003	Hans-Josef Laas	Mo5515N/LeA 33,673	1874
157	7590	12/13/2004	EXAMINER	
BAYER MATERIAL SCIENCE LLC 100 BAYER ROAD PITTSBURGH, PA 15205			SERGENT, RABON A	
			ART UNIT	PAPER NUMBER

1711

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

## Application No.

10/724,990

## Applicant(s)

LAAS ET AL.

## Examiner

Rabon Sergent

## Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/598,423.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/1/03, 2/4/03.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

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1. Applicants' preliminary amendment of February 2, 2004 fails to comply with the provisions of 37 CFR 1.121, because the amendment does not contain a complete listing of the claims. Claims 13 and 14 have been omitted from the claim listing.
2. Claims 7-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Firstly, within line 12 of claim 7, it is unclear what is meant by "polyisocyanate-reactive groups".

Secondly, the use of "may" within claim 13 renders the claim indefinite, because it is unclear if or to what extent the language denoted by "may" is optional.

Thirdly, with respect to claim 13, it is unclear how the language, "the static mixer contains at least one zone", is to be interpreted in view of the requirement within claim 7 that the static mixer has multiple zones.

Lastly, with respect to claim 14, it is unclear how the temperature requirements are to be interpreted in view of the static mixer reaction temperature set forth within claim 7. It does not appear that the reaction zone temperature range is further limiting over the entire range.

3. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Within the independent claims, applicants have claimed that reactants A), B), C), and D) are reacted in a static mixer at a temperature of at least 125°C; however, it is unclear with respect

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to exactly what processing operation is encompassed by this language. Since applicants attempt to rely upon this limitation to distinguish the instantly claimed process from the prior art, the exact meaning of the language must be clear. Specifically, it is unclear if the language requires that the static mixer be maintained at this temperature by external heating sources or if the temperature relates to that which results from the exothermic reaction of the reactants. For example, within Example 1, the static mixer was heated to a temperature of 108 to 112°C; however, the product exiting the static mixer had a temperature of approximately 140°C. In other words, it is unclear from the claim if the temperature pertains to the heated temperature of the static mixer or the exothermic reaction temperature of the product.

4. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a process for the production of uretdione group containing polyadducts within a static mixer at a temperature of at least 125°C and having a residence time as set forth within lines 8 and 9 of page 13 of the specification, does not reasonably provide enablement for processes conducted within a static mixer at the claimed temperature for residence times exceeding those disclosed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. Applicants have only provided enablement for conducting the polyaddition reaction within a static mixer at the claimed temperature, wherein the process is governed by the disclosed residence times. Applicants disclose that longer residence times will cause the uretdione groups to cleave and, with the exception of controlling residence time, have not provided further guidance to prevent the cleavage of the groups.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laas et al. ('064 or '066) in view of EP 669,354 and either Werner et al. ('945) or Gras ('531 or '727).

Laas et al disclose uretdione group-containing polyaddition products having applicants' claimed characteristics, wherein the products are produced from reactants which correspond to those claimed by applicants.

7. While Laas et al disclose that the reactants used to produce the products are stirred, patentees are silent regarding the use of static mixers. However, EP 669,354 teaches that uretdione containing polyaddition products can be produced in intensive kneaders at temperatures of up to 190°C and further teaches that these temperatures are necessary for solvent free preparation and that these elevated temperatures can be employed without cleaving the uretdione groups. See abstract and pages 2 of the reference. Therefore, EP 669,354 is considered to teach that intensive or turbulent mixing at elevated temperatures is advantageous for the production of solvent free uretdione group containing polyaddition products. It is noted that static mixers possess turbulent or intensive mixing characteristics, by design. Furthermore,

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both Werner et al and Gras disclose the use of static mixers in the production of uretdione containing compositions. See column 8, line 27 within Werner et al. See column 3, lines 9-14 within the Gras references. It is additionally noted that appellants' claims do not exclude the use of additional mixing equipment.

8. Therefore, for the following, additional reasons and since the use of mixers having turbulent or intensive mixing characteristics for producing solvent free uretdione group containing polyaddition products at elevated temperatures was known at the time of invention, the position is taken that one of ordinary skill in the art would have been motivated to utilize static mixers at elevated temperatures to produce the polyaddition products of the primary reference. In addition to the intensive mixing characteristics of the static mixers, the mixers are simple components lacking moving parts and the requirement for additional energy input, since they lack input shafts. As a result, any process utilizing static mixers in place of other mixers would have been expected to be less costly and simpler.

9. Applicants' amendment and argument concerning the reaction temperature has been carefully considered, and the prior art rejection has been drafted accordingly. Applicants' argument is considered to be deficient, because it fails to address the use of intensive mixers at elevated temperatures to produce uretdione group containing polyaddition products, as disclosed by EP 669,354.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.

R. Sergent  
December 6, 2004

  
RABON SERGENT  
PRIMARY EXAMINER